



January 31
2019

Planting Preparation & Maintenance – is the Gold Standard Necessary?

Urban Natural Areas Symposium

What Is Necessary For Plants to Survive?

Soil Preparation, Planting and Maintenance Questions

Soil Prep Questions

- Is my soil quality any good?
- What about compaction?
- Do I need to amend the soil?
- What's the best way to eradicate weeds?

Planting Questions

- What type of plant should I plant?
- How large of stock should I use?
- What density of plants do I plant to?
- Should I stake the plants?
- Do I need herbivory protection
- What about mulch?

Maintenance Questions

- What type of maintenance do I really need to do?
- How many years do I need to maintain these plants so they'll survive?
- Do I really need to irrigate? How and how long?
- What do I do if things aren't surviving as well as planned?

Is my soil quality any good? Do I need to amend?



Building Soil

Guidelines and Resources
For Implementing Soil Quality and Depth BMP T5.13

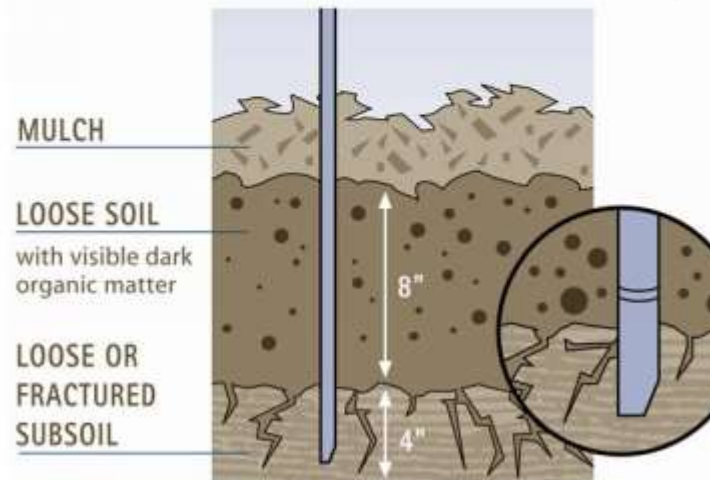
in WDOE Stormwater Management Manual for Western Washington

2012 Edition

STEP 4: Check soil depth in several spots.

Use a simple “rod penetrometer” (illustration below) to confirm that the soil is uncompacted twelve inches deep at ten locations per acre – with a minimum of ten on smaller sites. To locate test spots, imagine a line dividing the site (or each acre) in half lengthwise, then divide each half into five nearly equal sections. Conduct tests near the middle of each section. Additional test locations are encouraged.

The rod penetrometer should enter the soil twelve inches deep, driven solely by the inspector’s weight. Irregular scarification or rocks in the lower layer may require probing a few spots at each location to reach the full depth.



A rod penetrometer is a 4 foot long, 3/8 inch or 10 mm diameter stainless steel rod with a 90 degree bend 5 inches from the top to make a handle, and a 30 degree bevel cut 1/8 inch or 3 mm into the side of the tip.

Proposed Soil Specifications

These specifications are designed to achieve an 8 inch depth of soil with 10% “Soil Organic Matter” (SOM) content in planting beds, and 5% organic content in turf areas.

Detailed amendment rates and procedures are described in Section 4 “Amendment Options,” and in the specifications included in Section 7 “Resources”.

Developers may select from the following four options to meet the requirements:

Option 1.

Leave undisturbed native vegetation and soil, and protect from compaction during construction.

Option 2.

Amend existing site topsoil or subsoil either at “pre-approved” default rates, or at custom calculated rates based on tests of the soil and amendment.

Option 3.

Stockpile existing topsoil during grading, and replace it prior to planting. Stockpiled topsoil must also be amended if needed to meet the organic matter or depth requirements, either at a “pre-approved” default rate or at a custom calculated rate.

Option 4.

Import topsoil mix of sufficient organic content and depth to meet the requirements.



What about compaction?



MULCH

LOOSE SOIL

with visible dark
organic matter

LOOSE OR
FRACTURED
SUBSOIL

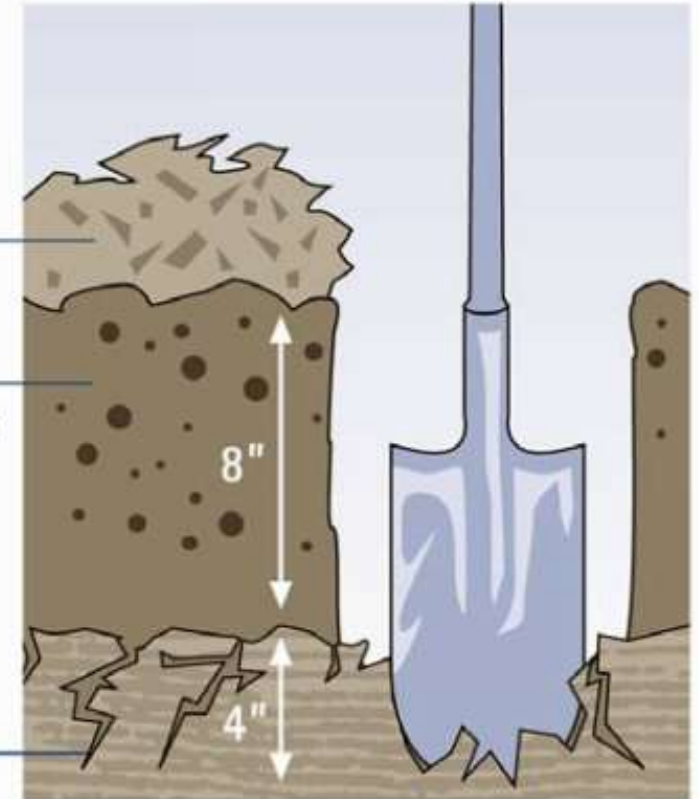


Figure 5.3.3 – Planting bed Cross-Section

(Reprinted from *Guidelines and Resources For Implementing Soil Quality and Depth BMP T5.13 in WDOE Stormwater Management Manual for Western Washington*, 2010, Washington Organic Recycling Council)

What's the best way to eradicate weeds in a non-native dominated planting area?





What type of plant should I plant? What size?



Restoration Superstars

- Willows
- Cottonwood
- Roses (*R. pisocarpa*, *R. nootkana*, thimbleberry, salmonberry)
- Ninebark
- Red osier dogwood
- Black twinberry

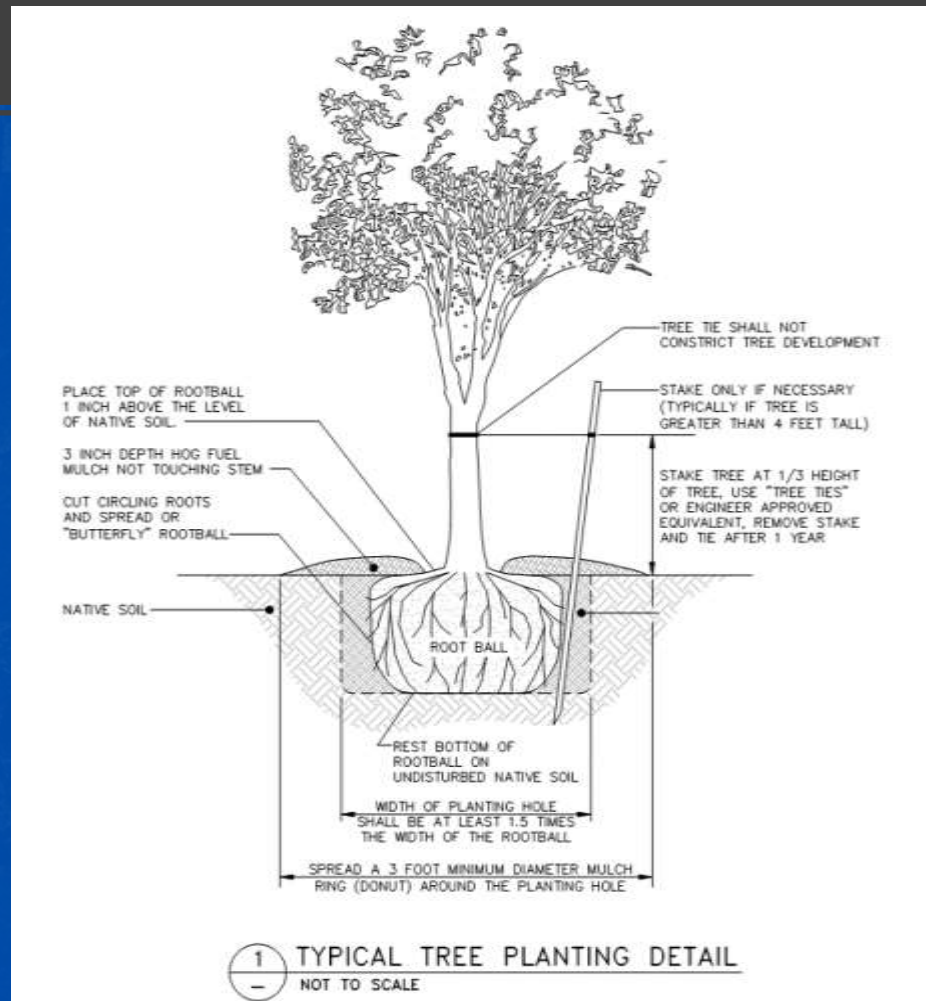


Plant Density

- Shrubs: 4' o.c.
- Trees: 10-12' o.c.
- Live Stakes: 2' o.c., clumped (!)
- Successional planting?



Should I stake? Herbivory?



What about mulch?

- ✓ Mulch Everything!!!
- ✓ Universal cure-all;
- ✓ Anchor on riverbank





Experimental Grass Plots



10/11/03



What type of maintenance?



Do I really need to irrigate?

- If disturbed soils - YES;
- If slopes – YES
- If no shade – YES
- If none of the above, still YES!!
- And yes, it's expensive . . .

~\$10K-\$30K/AC/YR





What if plants aren't surviving as well as planned?

Some combo of weed control / maintenance / replanting



Costs per acre

Approximate Costs:

- Mowing: \$5K - \$10K / AC
- Spraying: \$3K - \$5K / AC
- Clearing and Grubbing: \$10K - \$50K / AC
- Compost incorporation (3-4" thick): \$15K - \$20K / AC
- Mulching (3-4" depth): \$10K - \$20K / AC
- Erosion Control Blanket: \$10K - \$20K / AC
- Irrigation System Setup: \$10K (Impact & Hydrant) - \$30K (Drip + Meter + Waterline Hookup Fees) / AC
- Plants: \$30K - \$40K / AC (4' o.c., mostly 1-gal)
- Contractor Supplied Maintenance: \$10K - \$15K / AC / YR
- **TOTAL: \$102K - \$210K / AC**



THANK YOU!

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